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10/661,753	09/12/2003	John M. Koegler III	200310760-1	8167

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FORT COLLINS, CO 80527-2400

EXAMINER
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LAMB, CHRISTOPHER RAY

ART UNIT	PAPER NUMBER
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2627

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/661,753

Applicant(s)

KOEGLER ET AL.

Examiner

Christopher R. Lamb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-15, 17, 20-25, 31 and 33-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-15, 17, 20-25, 31 and 33-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 20, 23, 24, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda (US 2002/0191517) in view of Klein (US 6,145,368).

This rejection has been repeated from the previous Office Action, although it has been rewritten since these claims were originally rejected as similar to claims 5 and its dependent claims, and claim 5 has been substantially amended, requiring new grounds of rejection for those claims.

Regarding claim 20:

Honda discloses:

A method of making an optical disk, comprising:

coating a label region on the label side of the optical disk with an OPU-writable coating (paragraph 30).

Honda does not disclose:

“molding, in a first annular ring at a first radial position, a plurality of substantially identical disk speed features configured to be viewed during labeling of the optical disk, wherein an angular span of each disk speed feature is substantially identical to an angular span between each two disk speed features;

"defining, in a second annular ring at a second radial position, disk angular orientation features, different from the disk speed features, configured to be viewed during labeling of the optical disk, wherein at least some of the disk angular orientation features and at least some of the disk speed features have an overlapping angular position."

Klein discloses:

molding, in a first annular ring at a first radial position, a plurality of substantially identical disk speed features, wherein an angular span of each disk speed feature is substantially identical to an angular span between each two disk speed features; and defining, in a second annular ring at a second radial position, disk angular orientation features, different from the disk speed features, wherein at least some of the disk angular orientation features and at least some of the disk speed features have an overlapping angular position (Fig. 2: column 1, lines 25-45).

The purpose is to measure disk speed and angular position (column 1, lines 25-45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda molding, in a first annular ring at a first radial position, a plurality of substantially identical disk speed features configured to be viewed during labeling of the optical disk, wherein an angular span of each disk speed feature is substantially identical to an angular span between each two disk speed features; defining, in a second annular ring at a second radial position, disk angular orientation features, different from the disk speed features, configured to be viewed during labeling

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of the optical disk, wherein at least some of the disk angular orientation features and at least some of the disk speed features have an overlapping angular position.

The rationale is as follows:

Honda discloses tracking the disk speed (paragraph 37) and the angular orientation (paragraph 38). Klein's teachings disclose a way of tracking the speed and orientation. The motivation to combine would have been to increase the measurement accuracy.

Regarding claim 23:

In Honda in view of Klein defining the disk angular orientation features comprises defining optically readable indicia on a planar surface of the optical disk (as per Klein Fig. 2).

Regarding claim 24:

In Honda in view of Klein defining the disk angular orientation features comprises molding the disk angular orientation features into the optical disk (as per Klein Fig. 2).

Regarding claim 31:

In Honda in view of Klein the first and the second annular rings are radially contiguous on the disk (as per Klein Fig. 2).

3. Claims 2, 4, 5, 6, 8, 10, 25, and 34-38 rejected under 35 U.S.C. 103(a) as being unpatentable over Honda (US 2002/0191517) in view of Klein (US 6,145,368).

The claims will be addressed in order of dependency rather than numerical order.

Regarding claim 5:

Honda discloses:

An optical disk, comprising:

a label region on the optical disk comprising a writeable material (paragraph 30).

Honda does not disclose:

“substantially identical disk speed features, disposed on the disk in a first annular ring at a first radial position and located to be readable when writing the label region, to convey disk speed data; and

disk angular orientation features different from the disk speed features, disposed on the disk in a second annular ring at a second radial position different from the first radial position and located to be readable when writing to the label region, to convey disk angular orientation data, wherein at least some of the disk angular orientation features and at least some of the disk speed features have an overlapping angular position, and wherein the first annular ring abuts the second annular ring.”

However, note that Honda does disclose tracking the disk speed (paragraph 37) and the angular orientation (paragraph 38).

Klein discloses:

substantially identical disk speed features, disposed on the disk in a first annular ring at a first radial position, to convey disk speed data (Fig. 2: 104; column 1, lines 25-45); and

disk angular orientation features different from the disk speed features, disposed on the disk in a second annular ring at a second radial position different from the first radial position (Fig. 2: 102) to convey disk angular orientation data (column 1, lines 24-

45), wherein at least some of the disk angular orientation features and at least some of the disk speed features have an angular position (apparent from Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda substantially identical disk speed features, disposed on the disk in a first annular ring at a first radial position and located to be readable when writing the label region, to convey disk speed data; and

disk angular orientation features different from the disk speed features, disposed on the disk in a second annular ring at a second radial position different from the first radial position and located to be readable when writing to the label region, to convey disk angular orientation data, wherein at least some of the disk angular orientation features and at least some of the disk speed features have an angular position.

The motivation would have been to measure the disk speed and angular orientation directly from the disk, improving accuracy.

Honda in view of Klein does not disclose:

“wherein the first annular ring abuts the second annular ring.”

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda in view of Klein wherein the second annular ring abuts the first annular ring.

The rationale is as follows:

Whether the first annular ring abuts the second annular ring makes no difference to its purpose: the speed and angular tracking works no better or worse whether the rings abut or not.

Furthermore, applicant's specification, as originally filed, does not disclose any benefit or reason to have the rings abut one another. Applicant merely discloses embodiments where they abut (as per Fig. 1) and other embodiments where they do not (as per Fig. 2).

It has been held (see, e.g., *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950)) that shifting the position of a part is obvious when it does not modify the operation of the invention. Therefore shifting the position of the annular rings of Honda in view of Klein so that they abut would have been obvious to one of ordinary skill in the art at the time of the invention.

Regarding claim 2:

In Honda in view of Klein the label region is on a label side of the optical disk (Honda paragraph 30).

Regarding claim 4:

In Honda in view of Klein the optical disc includes a data side and a label side (Honda paragraph 30).

Regarding claim 6:

In Honda in view of Klein the first and second annular rings are configured for reading by an encoder (shown in Klein Fig. 1).

Regarding claim 8:

In Honda in view of Klein the disk angular orientation features are molded (they are slits in the disk so they must be molded).

Regarding claim 10:



In Honda in view of Klein the disk speed features are molded (they are slits in the disk so they must be molded).

Regarding claim 34:

In Honda in view of Klein all the disk speed features have a substantially identical size and shape (apparent from Klein Fig. 2), and at least some of the disk angular orientation features have a different size or shape from the disk speed features (apparent from Klein Fig. 2).

Regarding claim 35:

In Honda in view of Klein at least some of the disk angular orientation features have a different size from others of the disk angular orientation features (apparent from Klein Fig. 2).

Regarding claim 36:

In Honda in view of Klein, a pattern formed by the disk angular orientation features is not symmetrical about at least some axes extending outward from the center of the disk (apparent from Klein Fig. 2: since they are different sizes, the pattern is not symmetrical).

Regarding claim 37:

In Honda in view of Klein, a pattern formed by the disk angular orientation features about at least some axes extending outward from the center of the disk is different from the pattern formed by the disk angular orientation features about at least some other axes extending outward from the center of the disk (apparent from Klein Fig. 2).

Regarding claim 38:

In Honda in view of Klein, an angular span of each disk speed feature is substantially identical to an angular span between each two disk speed features (apparent from Klein Fig. 2).

Regarding claim 25:

All elements positively recited have been identified with respect to earlier claims. No further elaboration is necessary.

4. Claims 3, 7, 12, 14, 15, 22, 33, 17, 39-41, and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Klein as applied to the claims above, and further in view of Osborne (US 5,107,107).

Regarding claim 7:

Honda in view of Klein discloses an optical disk as discussed above.

Honda in view of Klein does not disclose wherein the disk angular orientation features are defined in a mirror region of the label side of the optical disk. Honda in view of Klein discloses a transmissive scheme for the disk angular orientation features: light passes through slits and is measured on the other side of the disk.

Osborne discloses an alternative to a transmissive scheme: a reflective scheme wherein the disk features are pits defined in a reflective, or mirror region (column 6, lines 10-65). Osborne discloses that it is more sophisticated.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda in view of Klein wherein the disk angular orientation features are defined in a mirror region of the label side of the optical disk.

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The motivation would have been to use a more sophisticated scheme. Also, because the reflective scheme taught by Osborne does not require slits through the disk, Osborne's method has more surface area on the opposite side of the disk, the data side, which would allow more data to be recorded.

Regarding claim 3:

In Honda in view of Klein, and further in view of Osborne, the disk speed features are configured to deflect incoming light (as discussed above).

Regarding claims 12:

As discussed above, Honda in view of Klein, and further in view of Osborne, comprising a surface, distinct from the writable material, having markings to indicate disk angular orientation.

Regarding claim 14:

Honda in view of Klein, and further in view of Osborne, does not disclose "wherein the markings comprise interspersed areas with and without substantially circular molded pits."

Honda in view of Klein, and further in view of Osborne, discloses molded pits, just not that they are "substantially circular."

However, Osborne disclose that in an optical disc information can be indicated through a substantially circularly molded pit that (column 8, lines 35-50).

It would have been obvious to one of ordinary skill in the art to include in Honda in view of Klein, and further in view of Osborne, wherein the second signal results when light is reflected by a substantially circular molded pit, as further taught by Osborne.

The rationale is as follows:

Using substantially circular molded pits to indicate information by monitoring a reflected light signal is the fundamental premise of all optical recording media, as attested by Osborne. Therefore one of ordinary skill in the art could certainly have created substantially circularly molded pits to create the signal required by Honda in view of Klein, and further in view of Osborne, with predictable results.

Regarding claim 15:

In Honda in view of Klein, and further in view of Osborne, the molded pits define a light-deflecting feature (Osborne: column 6, lines 10-65).

Regarding claim 22:

This claim is similar to claim 14 and is similarly rejected.

Regarding claim 33:

Honda in view of Klein, and further in view of Osborne, does not disclose wherein the first annular ring is configured for reading by an encoder and the second annular ring is configured for reading by an OPU.

Osborne compares a conventional encoder and an OPU. Osborne concludes that using an OPU can overcome the weaknesses of a conventional encoder (column 11, lines 25-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda in view of Klein, and further in view of Osborne, wherein the first annular ring is configured for reading by an encoder and the second annular ring is configured for reading by an OPU.

The motivation would have been to avoid the weaknesses of a conventional encoder when reading the second annular ring.

Regarding claim 17:

All elements positively recited have already been identified with respect to earlier claims. No further elaboration is necessary.

Regarding claim 39:

In Honda in view of Klein, and further in view of Osborne, the light-deflecting feature has a surface that is not perpendicular to incoming light applied to read the markings (at the very least the walls of the pit are parallel to, rather than perpendicular to, the incoming light).

Regarding claim 40:

In Honda in view of Klein, and further in view of Osborne, the molded pits deflect both coherent and incoherent light (both types of light would be deflected by the pits).

Regarding claims 41 and 43-45:

Honda in view of Klein, and further in view of Osborne, discloses all elements positively recited in these claims as discussed with regards to previous rejections.

5. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Klein, and further in view of Osborne as applied to the claims above, and further in view of Bugner et al. (US 6,109,324).

Regarding claim 11:

Honda in view of Klein, and further in view of Osborne, discloses an optical disk as discussed above.

Honda in view of Klein, and further in view of Osborne, does not disclose wherein at least one of the disk speed features or the disk angular orientation features are printed.

Bugner discloses printing a disk angular orientation feature (column 3, line 65 to column 4, line 10). Bugner discloses that this allows a secondary image to be printed in registration with the primary image (column 4, lines 1-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda in view of Klein, and further in view of Osborne, wherein at least one of the disk angular orientation features are printed.

The motivation would have been to allow printing a secondary image in alignment with a primary image.

Regarding claim 9:

In Honda in view of Klein, and further in view of Osborne, and further in view of Bugner, the disk angular orientation features comprise markings within the label region (as taught by Bugner).

6. Claims 13, 21, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Klein, and further in view of Osborne as applied to the claims above, and further in view of Nagashima (US 5,670,947).

Regarding claim 13:

Honda in view of Klein, and further in view of Osborne, discloses an optical disk wherein the markings define a light-deflecting feature, as discussed above.

Honda in view of Klein, and further in view of Osborne, does not disclose wherein the markings comprise a molded saw tooth to deflect light from a sensor.

Nagashima discloses a molded saw tooth can deflect light from a sensor (column 3, lines 25-45).

It would have been obvious to one of ordinary skill in the art to include in Honda in view of Klein, and further in view of Osborne, wherein the light-deflecting features are a molded saw tooth to deflect light from a sensor, because a molded pit and a molded saw tooth are used in the same environment, for the same purpose, and achieve the same result.

Regarding claim 21 and 42:

All elements positively recited have already been identified with respect to earlier rejections. No further elaboration is necessary.

### ***Response to Arguments***

7. Applicant's arguments filed August 16<sup>th</sup>, 2007 have been fully considered.

Some of Applicant's arguments are moot due to the new to the new grounds of rejection. Those that are still applicable will be addressed in turn.

First, Applicant argues that their amendment has overcome the previous rejections under 35 USC 112 first and second paragraph. This argument is persuasive and those rejections have been withdrawn.

Second, Applicant argues that claim 31 was not rejected under prior art in the previous Office Action, and that as a result any further action should be non-final.

However, claim 31 was addressed on pages 7-8 of the previous Office Action, so this argument has not been found persuasive.

Next, Applicant argues with the combination of Honda in view of Klein, stating that "there is no teaching or suggestion in the Klein reference that provides a basis to conclude that the techniques disclosed by the Klein reference would provide improved accuracy..."

However, it is generally known in the art that measuring, e.g., speed directly from the disc is more accurate than other methods. See, for example, Cordano et al. (US 3,426,337; cited in an earlier Office Action), column 1, lines 40-60: "it is, therefore, highly desirable to be able to employ a closed loop system by which control of position is directly referred to the record member itself." Thus one of ordinary skill would have reasonably expected that the teaching of Klein would be more accurate than the system employed by Honda.

Also, Applicant argues that Klein is not directed to optical discs, the combination "could be possible only in hindsight and in light of Applicants' teachings."

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a



reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The rejection takes into account only knowledge that was within the level of ordinary skill at the time the claimed invention was made. Honda's disclosure teaches writing to the label side of an optical disc, but does not provide a method for measuring the speed and/or angular orientation directly from the disc. One of ordinary skill would have understood the superior accuracy of measuring speed and/or angular orientation directly from the disc, and since Klein is directed toward measuring the speed and/or angular orientation of a rotating disc, the rationale to combine the references follows directly.

Applicant also argues with the rejection of claim 13 over Honda in view of Klein and further in view of Osborne, and further in view of Nagashima. Applicant argues first that the faces of the sawtooth pattern of Klein are not reflective: however, the claim only requires that the pattern "deflect light," and even if the faces are not particularly reflective they will still accomplish this purpose.

Second, Applicant argues that the sawtooth pattern of Nagashima is not used in the same environment for the same purpose. However, the disclosure of Osborne shows that in order to track the disc speed, one needs regions that reflect light back to the sensor, and regions that do not reflect light back to the sensor. Osborne discloses one method of making regions that do not reflect light back to the sensor. Nagashima discloses an alternate method of creating a region that does not reflect light back to a sensor. The two methods are interchangeable, in that if both are put into the same

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environment, they will accomplish the same purpose. One of ordinary skill could certainly have combined the teachings of Honda, Klein, Osborne, and Nagashima with predictable results.

Applicant appears to imply in their arguments that one of ordinary skill in the art would have been unaware of the teaching of Nagashima because the patent as a whole is directed to a smoke detector rather than an optical disc. However, the specific teaching, involving deflecting light from a sensor, is one that is directly relevant to the matter at hand, and certainly one of ordinary skill in the art would understand that a slanted surface would deflect light away from a sensor.

Applicant makes further arguments but they are either similar to or dependent on arguments that were not found persuasive, or rendered moot by new grounds of rejection.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (571) 272-5264. The examiner can normally be reached on 9:00 AM to 6:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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